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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/730,508	12/05/2000	JiYang Yan	DP-300317	6788

7590 01/02/2003

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EXAMINER	
ILDEBRANDO, CHRISTINA A	
ART UNIT	**PAPER NUMBER**
1725	8

DATE MAILED: 01/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-8

Office Action Summary	Application No.	Applicant(s)	
	09/730,508	YAN ET AL.	
	Examiner	Art Unit	
	Christina Ildebrando	1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 33 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 33 recites the limitation "a catalyzed adsorber of claim 19." This limitation renders the claim indefinite because it suggests that claim 19 is directed towards a product, i.e. the adsorber itself. However, claim 19 recites a method. It is suggested that applicant amend the claim to recite "a catalyzed adsorber as in claim 19."

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-2, 4-9, 11-23, and 25-33 are rejected under 35 U.S.C. 102(b) as being anticipated by Abe et al.

Abe et al. (US 5,662,869) discloses an adsorbent-catalyst system useful in the purification of exhaust gases. It is taught that the catalyst-adsorbent is a layer type

catalyst-adsorbent composed of a honeycomb structure having a surface layer coated with a first layer of a high silica containing zeolite such as ZSM-5, USY, or beta zeolite with a noble metal and a second layer composed of an inorganic oxide with a noble metal carried thereon and coated on the first layer (column 6, lines 40-47). It is taught that the honeycomb structure is preferably composed of cordierite (column 4, lines 45-59).

With regards to the zeolite adsorbent layer: It is taught that the zeolite may be a faujasite zeolite such as USY having an SiO_2/Al_2O_3 molar ratio of at least 20 (column 5, lines 20-25), which corresponds to a Si/Al atomic ratio of at least 10, which meets the instantly claimed range. It is further taught that the zeolite may be combined with an inorganic binder such as silica or alumina (column 5, lines 65-69).

With regards to the catalyst overlayer: It is taught that the catalyst overlayer preferably contains at least one kind of a noble metal such as Pt, Pd, or Rh carried on a heat resistant inorganic oxide such as alumina (column 6, lines 15-30). The use of gamma alumina is exemplified (column 11, Example 2). It is taught that the heat resistant oxide is preferably combined with an oxide such as cerium oxide or lanthanum oxide (column 6, lines 32-36). It is taught that the carried noble metal is loaded on the catalyst layer in an amount in the range of 20-130 g/ft^3 (0.0116-0.0752 g/in^3) (column 6, lines 35-40). It is further taught that the catalyst layer is loaded in an amount in the range of 0.02-0.20 g/cc (0.328-3.2774 g/in^3) (column 7, lines 1-7). Therefore, the non-catalyst loading amount is in the range of 0.2528-3.2658 g/in^3, which overlaps the range instantly claimed. Further, Example 2 (column 11) details the preparation of a catalyst-

adsorbent in which the catalyst layer has a non-catalyst loading of about 0.8 g/in^3 (total catalyst element is about 0.82 g/in^3 and noble metal catalyst loading is about 0.02 g/in^3), which value specifically meets the range instantly claimed.

With regards to the limitation "zeolite free," Abe et al. does not disclose that the catalyst overlayer contains any zeolite. Refer to column 6, lines 40-65. Note also Example 2 which details the preparation of a Catalyst-Adsorbent in which the catalyst overlayer is zeolite free. Therefore, it is considered that the reference meets the limitation.

As each and every element of the claimed invention is taught in the prior art as recited above, the claims are anticipated by Abe et al.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. as applied above for claims 1-2, 4-9, 11-23, and 25-33 and further in view of Noda et al. (EP 0 904 827).

The teachings of Abe et al. are as described above for claims 1-2, 4-9, 11-23, and 25-33.

Abe et al. does not teach the thickness of the catalyst layer.

Noda et al. (EP 0 904 827) discloses a catalyst-adsorbent useful in the purification of exhaust gases comprising a monolithic carrier, a zeolite adsorbent layer, and a catalyst layer loaded on the adsorbent layer (page 4, lines 8-15). Noda et al. teaches that the thickness of the catalyst layer is 10-120 microns, preferably 15-50 microns (page 4, lines 45-46). It is further taught by the reference that if the thickness of the catalyst layer is too small, the amount of the heat resistant inorganic oxide is too small relative to the amount of the noble metal and as a result a high dispersion of the noble metal is impossible and the noble metal causes sintering, resulting in reduced durability (page 4, lines 50-58). If the catalyst layer is too thick, HC adsorption is hindered by the catalyst layer and the proportion of HC adsorbed by the lower layer is low (page 5, lines 1-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified that catalyst-adsorbent taught by Abe et al. in light of the teachings of Noda et al. to include the use of a catalyst overlayer having a thickness as described by Noda et al. in light of the advantages taught by the reference. Because both references describe a catalyst-adsorbent composition useful in the purification of exhaust gas one would have reasonable expectation of success from the combination. Moreover, the teachings of Noda et al. establish the thickness of the catalyst overlayer as a result effective variable. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the instantly claimed ranges through process optimization, since it has been held that there the

general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215.

8. Claims 10 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. as applied to claims 1-2, 4-9, 11-23, and 25-33 above, and further in view of Noda et al. (EP 0 748 774).

The teachings of Abe et al. are as described above for claims 1-2, 4-9, 11-23, and 25-33.

Abe et al. does not teach that the overlayer has a catalyst loading of about 0.1 to about 0.2 g/in^3, as required by claims 10 and 24.

Noda et al. (EP 0 748 774) discloses a catalyst-adsorbent composition useful in the purification of exhaust gases. The catalyst layer comprises a noble metal and Noda et al. teaches that with respect to the amount of noble metal used, too small an amount gives no sufficient catalytic activity and too large an amount causes cohesion and involves a higher cost (page 10, lines 50-55). The reference teaches that the amount of noble metal is preferably 30-250 g/ft^3 (0.017-0.144 g/in^3) (page 10, lines 50-55).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the catalyst-adsorbent taught by Abe et al. in light of the teachings of Noda et al. to include the use of a catalyst overlayer having a catalyst overlay loading as described by Noda et al. in light of the advantages taught by the reference. Because both references describe a catalyst-adsorbent composition useful in the purification of exhaust gas one would have reasonable expectation of success from the combination. Moreover, the teachings of Noda et al. establish the

loading amount of the noble metal in the catalyst overlayer as a result effective variable. It would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the instantly claimed ranges through process optimization, since it has been held that there the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See *In re Boesch*, 205 USPQ 215.

Response to Arguments

9. Applicant's arguments filed 10/24/02 have been fully considered but they are not persuasive.

Applicant argues that Abe et al. is silent about the amount of zeolite that can be in the second layer. Applicant concludes that Abe et al. fails to teach a catalyst overlayer that is zeolite free. This argument has been considered but is not persuasive. There is no teaching in the Abe et al. reference that would suggest that the overlayer contains any zeolite. Refer to the description of the preferred catalyst-adsorbent arrangement detailed by Abe et al. at column 6, lines 40-65. It appears from the discussion that the zeolite and inorganic oxide are separated to aid in the purification process. Also, Example 2 specifically details the preparation of a catalyst-adsorbent which does not contain any zeolite in the overlayer. Therefore, considering that the reference does not teach or suggest that the overlayer could or should contain any zeolite and that the reference specifically exemplifies composition in which the overlayer

is free of any zeolite, it is considered that Abe et al. meets the claimed "zeolite free" limitation.

With regards to the various rejections under 35 USC 103(a) in view of the secondary references, applicant argues that the secondary references fail to teach the zeolite free overlayer required by the claims. However, as discussed above, it is considered that Abe et al. anticipates the claimed "zeolite free" limitation. The secondary references have not been relied upon to teach this feature.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Ildebrando whose telephone number is (703) 305-0469. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

CAI
December 18, 2002

TOM DUNN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700